

2016-9-12 DSES Technical Planning Meeting Minutes

Location and Time: The 20th DSES Engineering and planning meeting was held on Monday, Aug 12, at 5:30 PM at the Cumulus Media conference room at 6805 Corporate Dr. # 130, Colorado Springs, CO 80919.

Attendance: Gary Agranaut, Ed Corn, Michael Lowe, Bill Miller, Steve Plock, Dr. Richard Russel, Ray Uberecken, Floyd Glick, Glenn Martin

Attending Remote: Skip Macaulay from Ontario, Canada joined by Team Viewer Video.

As usual if I have omitted or miss represented anything here please feel free to correct it.

Agenda:

- 1. Next Site Work Party:** Saturday Sept 24th. Meet at Ellicot Fire Station at 7:30AM
- 2. Next Science Meeting:** Monday Sept. 26th, 5:30 at Dr. Richard Russell's residence.
- 3. Last meeting minutes** None published for Aug. because Bill was out on vacation. The major part of the conversation revolved around how to improve the Bunker and the ramp issues involving tumble weeds, Mud and flooding. Rebuilding a railroad retaining wall where the cinder block wall was demolished on the south side was one of the most viable options buy more needs to be discussed on this considering the overall viability of the bunker.

4. This Meeting Discussion Minutes

Ray Uberecken:

- A Microwave Conference paper on the 4 band antenna feed was written by Ray and Myron and Edited and published by Rich into the microwave conference.
- Antenna Feed
- Finished complete assembly
- Ray and Steve installed the antenna feed at Plishner on 9-10 with lots of help from Bill, Rich and Bob on the ground
- Still need to run the control cable up the boom and attach the controller in the comm. trailer on next trip.
- Ray asks is there any reason that we couldn't run a taunt cable from the feed point to the middle of the dish and run the cables down the cable. Everyone agreed that this shouldn't cause any problem with the signals or mechanics. Will do this on the next trip and get the controller cable hooked up to the
- Ray has 2 FM Receivers that he has modifying for Meteor Scatter
- Installed at the site on 9-10 but the speakers used to check them were bad so will have to return with good speakers.
- Because all of the Analog Video TV Carriers are gone a new method is required to detect the meteor ionization trails. FM radio stations are high powered, there are a lot of them and they are in a good frequency band for meteor scatter. The downside is they are FM and this isn't conducive to detection. Converting the 19 KHz pilot carrier can provide an AM signal needed to detect the meteors.
- The Bunker was dry and so Ray shut down the fan inside.
- The generator worked flawlessly after Ed's excellent repair.

Ed

- The LAN link from the pedestal was made with an Ethernet switch in the pedestal and a switch in the Comm. Trailer.
- Will add a switch in the Generator building to break up the long haul of about 500 feet from the comm. trailer to the bunker.
- Ed also made progress on some of the other electrical wiring in the pedestal and generator

building.

Steve

- o. Steve Purchased 3 solar panels from the PPRA for installation at the site. This should improve the power capability of the comm. trailer dramatically.

Rich

- p. The USB extender that Dave and Don are using to transfer the dish motor position signals has limited range and is not working well so needs some work.
- q. The radios will require power in the comm. trailer. Ed and Steve already installed a power pole 12 volt DC distribution block with about 10 power pole connectors so this shouldn't be a problem.

Bill

- r. The GSM to Wi-Fi hot spot needs to be changed to a GSM to wired Ethernet Cat5 connection so we can turn off the Wi-Fi and connect the LAN directly to the GSM transceiver or access modem. Could run through the USB of the now attached GSM to Wi-Fi hotspot and turn off the Wi-Fi but it would require connecting to the USB port of the computer and then using some comm. program to get to the RJ45 Ethernet connected to the router.
- s. Michael says this is possible with the Hot Spot we have.
- t. Ideally we could place the GSM transceiver at the generator and or better yet, the bunker, to minimize RF interference at the Comm. Trailer and Antenna.
- u. The goal on the next trip is to have at least one strand of a LAN connected and operational from end to end of the 600 foot path and be able to attach on the Ethernet in each building.

Ray

- v. The controller and feed line are ready. The 24 volts runs up the feed line when in transmit only. The 24 volts isn't used in receive mode and is converted to 13.3Volts for the transmit power. 12 volts runs up the control cable for receive modes.
- w. Ray wants to go down and finish the connections and setup in two weeks. Sept. 24 trip is planned.
- x. The ARRL EME contest is on October 22.
- y. Ray will have the radios down at the site by the contest date.
- z. Other potential contest and event dates:
 - aa. October 17 - 21 School Club Roundup
 - bb. October 22 – 23 EME – 50 – 1296 MHz
 - cc. November 5 – 7 November Sweepstakes CW
 - dd. November 19 – 21 November Sweepstakes Phone
 - ee. November 19 – 20 EME – 50 – 1296 MHz
 - ff. December 2 - 4 160 Meter Contest
 - gg. December 10 –11 10 Meter Contest 18 Rookie Roundup

Skip

- hh. Skip suggests that the Preamp transfer switch be wired so that if the power or connection fails that it can't be connected in transmit mode so the preamps get blown. The relays should fall to a safe connection in a power loss due to cable or controller failure.

Michael

- ii. Will have a table at the Haswell Bazaar on the 15th of October from 9 to 2PM in the school.
- jj. Need someone to man this as Michael is booked in COS for a maker's fair.
- kk. Several People volunteered. Gary said he could go and Bill may be able to help as well.

Ray and Myron

- ll. Will drive to ST Louis for the Microwave Update Conference on Thursday morning the October 13th and come back on the 16th.

Ray

- mm. "We have made good progress. What else do we want to do?"

Rich

- nn. Can start improving the radio Jove setup as Jupiter is waning and we have 4 months to get it set up for the next Jupiter night season.

- oo. SuperSids
- pp. Have the NASA guy's attention on what we are doing. Promote that and provide more data.
- qq. They would very much like Observation Data from the Radio Jove and SuperSids during the Eclipse on Aug 21st 2017, morning. See track.
http://www.eclipse2017.org/2017/path_through_the_US.htm
- rr. Traveling to Wyoming could accomplish this.
- ss. An interferometer would be really good so we should build a small one for POC using the Dish Network dishes.
- tt. Rich provided the formula for the interferometer resolution and its applicability to several small dishes
- uu. Could use this in collecting data in the eclipse.
- vv. Using the disk network dishes needs the bias Ts and a signal combiner
- ww. Floyd suggests that you need to synchronize the oscillators
- xx. Solar radiometer to get sun spot number.
- yy. Ray says we need a really good motor driven mount to make a calibrated position on the figure 8 sun positions over the year.

That is about all of the minutes that I captured for the meeting. If I missed anyone or information please add that and send it out.

5. Site visit on September 10 Ray, Ed, Steve, Rich, Bob and Bill

- a. Ed went down earlier in the week and finished the repair on the generator so on Saturday it worked perfectly and we had power all day.
- b. Steve manually controlled the dish and moved it into the service position with the feed mount just above the top of the 3 story scaffold.
- c. A round mounting plate was drilled to match the dish mount housing and hoisted up to the mount.
- d. The multiband feed was prepped and tethered with a pulley on the disk strut to host it into position.
- e. Ray and Steve donned climbing gear and climbed the scaffold and strapped onto the dish feed mount.
- f. Bill, Rich and Bob hoisted the Multiband Feed of about 60 LBS with the ropes to Ray and Steve who positioned it on the mount. It would go in so had to repeat this whole exercise several times, up and down to modify the mounting plate.
- g. Finally with some finesse and a lot of force the mount lined up and reluctantly slid into the mounting plate and was secured with its U-bolts.
- h. The dish was restowed to the vertical position and photos were taken.
- i. The whole exercise took most of the day.
- j. Bob and Denise Dockey, Rays good friends who have moved to Texas were visiting and brought out their motor home, spending most of the day with us.
- k. They made some fantastic chili and we all had a late lunch after installing the multiband feed.
- l. Meanwhile Ed had made some more progress on the electrical wiring in the generator and the comm. trailer.
- m. Ed also started to get the LAN set up with a switch in the comm. trailer.
- n. Bill brought in a couple of Net Gear switches for the generator shack and the bunker and left them on the service table in the comm. trailer for the next trip.
- o. Bill also built up a 1U 24 port RJ45 patch panel installed in the rack and ran two wires lines with terminated RJ45s out to the Cat5 connection from the buried line next to the comm. trailer. These were not hooked up but will be on the next trip installing Cat 5 patch cables to the switch and couplers at the Generator shack.

Meeting Close: Thanks for everyone's participation and great work!

73,
Bill Miller
KCOFHN
DSES Secretary
719-591-9760